

CLAIMS:

We claim:

- 5 1. A tissue-specific replication conditional adenovirus vector comprising a heterologous prostate-specific transcriptional regulatory element operably linked to a nucleotide sequence encoding an E1A/Androgen Receptor (AR) chimeric protein.
- 10 2. The vector of claim 1, wherein the transcriptional regulatory element is selected from the group consisting of promoters and enhancers and combinations thereof which contain at least one androgen response element.
- 15 3. The vector of claim 2, wherein the promoter is selected from the group consisting of prostate-specific promoters with functional androgen response elements including but not limited to the Prostate Specific Antigen (PSA), probasin (PB) and glandular kallikrein-1 gene (hk2).
- 20 4. The vector of claim 1, wherein the adenovirus is serotype 5 (Ad5).
- 25 5. The vector of claim 1, which can be differentially regulated by either androgen or non-steroidal androgen and hence be administered to a patient with prostate cancer regardless of hormonal status or androgen receptor status.
6. The vector of claim 1, wherein the E1A/AR chimeric protein is an E1A full length chimeric protein, represented by SEQ ID NO. 1.
7. The vector of claim 1, wherein the E1A/AR chimeric protein is an E1A/TAD chimeric protein, represented by SEQ ID NO. 2.
- 30 8. The vector of claim 1, wherein the E1A/AR chimeric protein is an E1A/DBD chimeric protein, represented by SEQ ID NO. 3.
9. The vector of claim 1, wherein the E1A/AR chimeric protein is an 12S/AR full length chimeric protein, represented by SEQ ID NO. 3 and SEQ ID NO. 7.

10. The vector of claim 1, wherein the E1A/AR chimeric protein is an 12S/TAD chimeric protein, represented by SEQ ID NO. 5 and SEQ ID NO. 8.

5 11. The vector of claim 1, wherein the E1A/AR chimeric protein is an 12S/DBD chimeric protein, represented by SEQ ID NO. 6 and SEQ ID NO. 9.

12. The vector of claim 1, wherein the E1A/AR chimeric protein is an E1A/AR C685Y chimeric protein, represented by SEQ ID NO. 13.

10 13. An adenoviral vector particle comprising the viral vector of claim 1.

14. A method of selectively lysing a neoplastic prostate cell comprising contacting the cell an effective amount of the adenoviral vector of claim 13.

15 15. A method of producing a tissue-specific replication conditional adenovirus particle, said particle comprising a a heterologous prostate-specific transcriptional regulatory element operably linked to a nucleotide sequence encoding an E1A/Androgen Receptor (AR) chimeric protein.

20 16. A pharmaceutical composition comprising an adenoviral vector particle of claim 13 and a pharmaceutically acceptable carrier.

17. A method of treating a host organism having prostate cancer comprising administering a therapeutically effective amount of the composition of claim 16 to said host organism.

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18. The method of treatment of claim 17, wherein the host organism is a human patient.

19. A vector of claim 1, wherein the E1A/AR chimeric protein is inactivated by ansamycins.

30 20. A vector of claim 19, wherein the ansamycin is geldenamycin.